AMENDMENT TO THE CLAIMS

1. (Currently Amended) A high pressure discharge lamp, comprising:

a quartz glass bulb;

a conductive element which is airtightly sealed at a sealing portion of said quartz glass bulb; and

a pair of electrodes, each electrode of said pair of electrodes being disposed in said quartz glass bulb so as to be opposite the other and said each electrode of said pair of electrodes being connected to said conductive element,

wherein a part of said each electrode of said pair of electrodes is sealed with said quartz glass bulb at said sealing portion so as to generate a contacting portion formed by the part of each electrode of said pair of electrodes and said quartz glass bulb, and

~~the~~ a maximum length $L_{max,}$ of the contacting portion is defined as:

L_{max} (mm) $\leq$ 200/(PxD); and

~~the~~ a minimum length, $L_{min,}$ of the contacting portion is defined as:

L_{min} (mm) $\geq$ 0.8/ (D^2x π) or

L_{min} (mm) $\geq$ 0.7 whichever is longer,

where D is the diameter (mm) of the corresponding electrode of said pair of electrodes and P is the power (W) supplied to the corresponding electrode of said pair of electrodes, and

wherein said contacting portion terminates inside and beyond an edge of a foil.

2. (Currently Amended) ~~A~~ The high pressure discharge lamp according to claim 1, wherein said conductive element ~~is~~ comprises molybdenum foils.

3. (Currently Amended) ~~A~~ The high pressure discharge lamp according to claim 1, wherein the maximum value, R_{max}, of the surface roughness of said pair of electrodes at the contacting portion is about 5 μm or less, where R_{max} is the maximum of the absolute value of the difference between the distance from the axial center of each of said electrodes to a particular point on the surface of each of said electrodes and the mean value of the distance.

4. (Currently Amended) ~~A~~ The high pressure discharge lamp according to claim 2, wherein the maximum value, R_{max}, of the surface roughness of said pair of electrodes at the contacting portion is in the range between about 2 μm and 3 μm.

5. (Canceled)

6. (Currently Amended) A high pressure discharge lamp, comprising:

a quartz glass bulb;

conductive elements, said conductive elements being airtightly sealed at sealing portions of said quartz glass bulb; and

a pair of electrodes, each electrode of said pair of electrodes being disposed so as to be opposite the other and each of said electrodes being connected to one of said conductive elements,

wherein R_{max} of ~~an end~~ a contacting portion of each of said electrodes is about 5μm or less, wherein R_{max} is a maximum of ~~the~~ an absolute value of ~~the~~ a difference between ~~the~~ a distance from ~~the~~ an axial center of each of said electrodes to a particular point on ~~the~~ a surface of each of said electrodes and ~~the~~ a mean value of the distance, and

wherein said contacting portion terminates inside and beyond an edge of a foil.

7. (Currently Amended) ~~A~~ The high pressure discharge lamp according to claim 6, wherein said conductive elements ~~are~~ comprise molybdenum foils.

8. (Currently Amended) ~~A~~ The high pressure discharge lamp according to claim 6, wherein ~~the~~ a length of said ~~end~~ contacting portion of each of said electrodes is in ~~the~~ a range between about P/150 and P/100 mm from an end of each of said electrodes along the length of each of said electrodes, where P is a supplied power to said high pressure discharge lamp in watts.

9. (Currently Amended) ~~A~~ The high pressure discharge lamp according to claim 6, wherein ~~the~~ a maximum value of ~~the~~ a surface roughness of the contacting portion of each of said electrodes is about 3μm or less.

10. (Currently Amended) ~~A~~ The high pressure discharge lamp according to claim 6, wherein ~~the~~ a maximum value of ~~the~~ a surface roughness of the contacting portion of each of said electrodes is about 1μm or less.

11. (Currently Amended) ~~A~~ The high pressure discharge lamp according to claim 6, wherein ~~the~~ a maximum value of ~~the~~ a surface roughness of the contacting portion of each of said electrodes is about 0.5μm or less.

12-13. (Canceled)

14. (Currently Amended) ~~A~~ The high pressure discharge lamp according to claim 6, wherein mercury vapor is contained in the high pressure discharge lamp in an amount between about 0.12 and 0.3 mg/mm^3.

15. (Currently Amended) ~~A~~ The high pressure discharge lamp according to claim 6, wherein a halogen gas is contained in the high pressure discharge lamp in an amount between about 10^{-8} and 10^{-2} mol/mm^3.

16. (Currently Amended) ~~A~~ The high pressure discharge lamp according to claim 6, wherein an inert gas is contained in the high pressure discharge lamp with a pressure of about 6 kPa or more.

17. (Currently Amended) ~~A~~ The A high pressure discharge lamp according to claim 6, wherein said pair of electrodes comprises tungsten containing potassium oxide.

18. (Currently Amended) ~~A~~ The A high pressure discharge lamp according to claim 6, wherein the bulb wall loading in the high pressure discharge lamp is about 0.8 W/mm^2 or more.

19. (Currently Amended) ~~A~~ The high pressure discharge lamp according to claim 6, wherein the ~~end~~ contacting portion of each of said electrodes has a surface, and said surface ~~being~~ is polished by a composite electrolytic polishing method.

20. (New) The high pressure discharge lamp according to claim 1, wherein said high pressure discharge lamp comprises an internal pressure of at least 8MPa.

21. (New) The high pressure discharge lamp according to claim 1, wherein a distance between said each electrode is 1.0 - 2.0 mm.

22. (New) The high pressure discharge lamp according to claim 6, wherein said contacting portion is formed by a part of each electrode of said pair of electrodes and said quartz glass bulb.